Biology

Standard 1: Nature of Science

Science involves observation, experimentation, validation, and changing understandings.					
No Evidence	Attends and responds to a scientific investigation.	Communicate what was observed (e.g. put an object in water and student will communicate what happened to the object)	Make predictions, based on observation, and experience (e.g. Student will predict if an object will sink or float.	Communicate conclusions of investigations	Given a scientific principal, generate examples that support or refute a principle.

Standard 2/3 - Structures and Functions of Living Systems: Cellular Structure

All living things are made of cells.					
No Evidence	Indicate if something is living or non-living based on the presence or absence of cells.	Explain that all living things are made up of cells and that cells work together to form the entire organism.	Identify types of cells (e.g. blood, nerve, muscle) and associated organs in the body	Give examples of different functions of cells. (e.g. skin-protection, hair-warmth , blood-transport materials/medicine	Identify parts of the cell (e.g. nucleus, cell membrane, cytoplasm, etc.).

Standard 4 - Structures and Functions of Living Systems: Matter and Energy Transformations

Living things must take in substances in order to make energy.					
No Evidence	Attends and responds to forms of energy (heat, sound, light, chemical, and mechanical, potential/kinetic)	Identify that plants change the sun's energy into food energy by changing carbon dioxide and water into sugar.	Classify food as a protein, carbohydrates or fat (e.g. chicken, fish, butter, bread, etc)	Indicate situations where energy is being used in living organisms.	Match types of foods and their role in the body (e.g. protein for growth, carbohydrates for energy, fats for energy storage)

Standard 5 - Structures and Functions of Living Systems: Matter Cycles and Energy Transfer

The sun is a source of energy that sustains life and changes forms of matter					
No Evidence	Identifies the sun as a source of light and heat.	Identifies objects needing sun vs. those that do not (e.g. turtle vs. rock)	Describe the effects of the sun's light and heat on living things (e.g. skin will sunburn, plants will grow)	Predict how matter will change forms in a variety of situations	Draw a simple food chain that includes the sun, producers, consumers, and the direction of energy flow.

Standard 6- Structures and Functions of Living Systems: Interdependence

Natural changes and human behavior impact the entire ecosystem					
No Evidence	Match an organism to its habitat.	Identify natural disasters (e.g. tornado, hurricane, flood) and match the natural disaster to its effect on the environment.	Identify interactive relationships between living organisms (e.g. how humans, plants, animals all live together)	Sort human behaviors into categories of beneficial to the Earth and harmful to the Earth. (e.g. dumping trash, recycling, smoking, planting trees)	Explain how given human behaviors harm or help the ecosystem.

Standard 7- Changes in Living Systems: Molecular Basis of Heredity

Genes make living things unique					
No Evidence	Indicate if two living things are the same or different	Sort living things into categories based on similarities and differences in their traits.	Identify the basic structure of DNA when given several drawings or models from which to choose.	Explain that DNA makes up genes that control our traits.	Identify common traits controlled by genes (e.g. hair and eye color, dimples, tongue rolling)

Core Standard 8- Changes in Living Systems: Gene Expression

Human behavior and environmental factors can change your genes					
No Evidence	Match a sequence of DNA to an identical sequence and to one that has been changed (e.g. AGGCT to AGGAT).	Sort safe and dangerous behaviors (e.g. people being sunburned, smoking, drinking alcohol, putting on sunscreen, drinking water or wearing x-ray protective vests)	Explain that there are factors in our environment that can cause changes (mutations) in our genes and that some of these mutations are harmful.	Indicate how environmental conditions and personal decisions can affect parts of the body (e.g. allergies, smoking, over eating)	Gives examples of behaviors and environmental factors that can cause harmful mutations in genes (e.g. sunlight, radiation, pesticides, cigarette smoking).

Core Standard 9 – Changes in Living Systems: Heredity and Reproduction

Living creatures have physical differences and similarities					
No Evidence	Name a physical characteristic of an organism.	Match parent and offspring organism (e.g. lion and cub, dog and puppy	Identify traits in an offspring that are similar to those of its parents.	Predict physical traits of offspring based on physical traits of parents	Explain (verbally, in writing, or through the use of a diagram) that the traits controlled by genes are passed to offspring

Core Standard 10- Changes in Living Systems: Evidence for Evolution

Living things are adapted to survive in a particular environment and pass these adaptations to their offspring					
No Evidence	Match an organism to correct environment (e.g. fish-pond, bird-tree)	Indicate specific characteristics of an animal that allow it to live in its environment (e.g. things living in water need fins, and those on land need feet).	Identify a trait that a species has that gives it the ability to find and obtain resources (e.g. giraffes have a long neck to eat leaves from trees)	Identify traits that a species may have that allows it to escape predation (e.g. greater production of offspring, color that blends with surroundings)	Explain that traits giving a species a better chance of survival are more likely to be passed on to offspring.